

## REMARKS

The claims are unamended but included herein for convenience.

All claims are rejected as being obvious over Ramarethinam in view of Lehmborg.

There is an essential difference between claim 1 and the cited art which is of major importance in considering the question of obviousness. This is the requirement that the enzyme solution is applied to the tea leaves before the fermentation step. This is done in order to remove lipids which if left undegraded would result in an unpleasant pacha taste in the tea.

Ramarethinam explains that its objective is not to remove flavor chemicals but to enhance the flavor of CTC teas (see page 328 bottom of right hand column). CTC tea differs from that obtained by the orthodox tea processing in that its processing has three stages (crush, tear, curl or cut, tear, curl), hence the name "CTC" tea. The first step involves mechanical crushing of buds leaves and stems indiscriminately and thus typically leads to a product regarded as being of lower quality than that produced by the orthodox process. The resultant product looks like small pellets of (usually black) tea. It produces a very strongly flavored, quickly infusing tea that is often used in teabags. In orthodox tea processing, on the other hand, is hand picked or plucked resulting in a product of higher quality. The present invention relates to CTC tea. The examiner points to page 331 of Ramarethinam. This however, applies enzymes at the end of the fermentation stage ( see left hand column lines 18 - 20) not before fermentation as required by present claim 1. As explained in the paragraph bridging the two columns on this page and that following, chemical transformations occur during the fermentation which result in the chemical mix after fermentation differing from that prior to fermentation. There is therefore no rational basis for modifying the process of Ramarethinam to carry out treatment with an enzyme solution prior to fermentation rather than after fermentation.

Ramarethinam discloses a lipase treatment to enhance the aroma and flavor of tea by a significant increase in the amount of volatile flavor compounds. These compounds are formed mainly from the conversion of unsaturated lipids to long chain aldehydes and alcohols ( $C_6 - C_{10}$ )

by lipases. Ramarethinam also reports an increase of more than double, of a C6 compound, after lipase treatment. (See Table-I, Page 331). The present application teaches that combination of lipases, lipoxygenase and alcoholdehydrogenase used to degrade the lipids, left: undegraded, during the manufacturing process, which (if left) degrade during storage and produces off flavors like "Pacha 'Taint'. The present invention, thus .. teaches a procedure to remove a flavor, which is undesirable, from tea. The chemical constituents responsible for the formation of this odor/taint are C6 aldehydes and C6 alcohols. Thus the procedure of the present invention eliminates C<sub>6</sub> compounds

In Ramarethinam, lipases are added at the end of fermentation stage of tea manufacture, to gain additional/enhanced flavors. In the present invention a mixture of enzymes is added before the fermentation step by spraying on rolled leaves, to remove lipids by degradation which result in off flavors.

The present invention therefore claims a new and specific use of an enzymatic process, wherein an off flavor is removed from tea, enhancing the shelf life of tea, without any compromise on its quality,

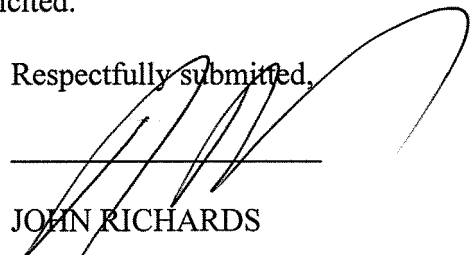
Lehmberg teaches process for preparation of acid stable instant tea or soluble black tea. Black tea is extracted with water containing an enzyme cocktail of tannase and one or more cell wall digesting enzymes, such as cellulose, pectinase, hemicellulase or viscozyme at a selected pH. The resulting tea extract is then pasteurized, polished and made into a finished beverage or concentrated and dried in the usual manner. Lehmberg teaches use of black tea obtained in the usual way as the starting material (column 2, lines 54-55). This "usual way" has been elaborated on column 1, lines 41- 50, As pointed out in response to the previous action, this means that the enzymes are applied after fermentation. The present invention uses a different procedure with the object of removing off flavors (pacha taint) to enhance shelf life. As noted above in the present invention, the enzyme treatment is before fermentation. The present invention does not involve preparation of instant tea from extracts of tea leaves where the enzyme solution is added after fermentation for the purpose of degrading the cell wall. Thus the present invention is clearly distinguished from Lehmberg

Since both of the cited references apply enzymes after fermentation and the present invention applies enzymes prior to fermentation and for a totally different purpose, there is no way in which combination of the two references would lead one skilled in the art to the invention as claimed. Direct combination would still result in use of the enzyme solution after fermentation and the different purposes mean that there is no reason why one skilled in the art would have thought to modify either of them separately or whatever can be deduced from their combination to produce the invention as claimed.

It is therefore submitted that the requirements of 35 USC 103 have been met.

In view of the foregoing, it is submitted that this application is in order for allowance and an early action to this end is respectfully solicited.

Respectfully submitted,



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